Enviro-News: Village on Sea

WINTER 2021

Introduction

Yet again we can reflect on a healthy estate, with lush fynbos, many flowering plants, 100^{+} species of birds and a growing variety of mammals. We have also had a remarkable period of calm seas and superb weather. While the whale season is proving less intense than in past years, this has been offset by the huge schools of very active dolphins that can be seen on almost any day.

The scientific information reflecting global warming is becoming more compelling and closer to home. It has now convincingly been shown that 'our' ocean, the West Indian Ocean (WIO), is the fastest heating ocean on the planet. A study carried out by a team of French and German scientists, has been able to trace surface seawater temperatures (SST) back 334 years and convincingly demonstrate that our WIO was historically much cooler. This was determined by drilling into fossil coral reefs, extracting the core and measuring certain micro chemical ratios. In this case, the cores were obtained from the southern Mozambique Channel, Europa island and south west Madagascar. It was the ratio of Stronteum and Calcium (Sr/Ca) that generated the best proxy for SST. Since 1880, when actual temperatures were first recorded, it has been possible to validate the direct relationship between the chemistry of the coral core and the SST, confirming that there has been a substantial increase over years. For example, the 43 year period 1970 to 2013 has shown an average temperature rise of 0.5^{o}C in the southern Mozambique channel.

As if this was not enough, in early 2021 a large number of fish washed up dead on beaches stretching from the KZN South Coast to the Eastern Cape coast. The range of species as well as their habitats were variable, some coming from deep and other from shallow shores, some were large, others small, some herbivores and others carnivores. A number of scientists have speculated what may have caused this unusual event and there is a growing consensus that a 'hot flush' in the ocean may have been the killer. If this proves true then it is an ominous signal of future conditions.

Street Names

The street names on our Estate are in keeping with an eco-estate. This time we highlight 'Vygie', (*Carpobrotus edulus)* a splendid creeping plant that serves many purposes. Its bright yellow flowers make a nice show on the estate. Its fleshy leaves carry much water, making the vygie a most useful plant to use in fire-breaks. Its fast growth means that it takes up CO2 at a considerable rate, further improving its role as a climate controller. This ubiquitous little plant is very fast growing, is drought resistant and produces seed pods that are edible, either fresh, made into jam, or dried as a snack.

Plant in Focus

Every winter brings with it the wonderful display of flowers, especially brightly coloured aloes, of which there are many species. However, one of the most striking and common aloe species is *Aloe arborescens*. Its Afrikaans name, kransaalwyn, perfectly describes its preferred habitat on steep mountain slopes. This species appears to interact well with other aloe species, creating new varieties as indeed has happened in the greater Mossel Bay area and especially in the valley of the Gouritz River. The local variety is especially brightly coloured.

In the past we have highlighted a few local environmental issues of concern. One of these was the proposed gas and oil exploration offshore Mossel Bay, planned by Total. This has now been shelved, possibly avoiding impact on marine life over the Agulhas Bank. This may prove a bonus for marine life.

Fisheries Research

Periodically, we can see the Department of Fisheries' research vessel, the Africana, conducting scientific surveys off our coast. These surveys generate the data required to assess the status of our main fisheries so that well-informed quotas can be calculated and issued to the fishing companies. While these surveys are preferably undertaken annually, this is not always possible due to financial constraints. Earlier this month, the Africana undertook a deepwater demersal survey, reaching as far east as Port Alfred. One technique used to calculate the Total Biomass is the Swept Area method. A randomly generated grid determines where the research trawl should sample the fish. Having calculated the areas where selected species occur, the catch data from the swept area is scaled up to the entire coast. However, as far as possible, the density and type of species can be 'estimated' by using sophisticated echo sounders, so that only occasionally a trawl needs to be lowered to confirm the species being tracked. This work is physically and technically demanding with much statistical number crunching, but very rewarding when the final results are in.

Besides the target species, estimates are also made of bycatch species. One feature that stands out in local trawls is the variety of small sharks species, including the very pretty catsharks. South Africa has the largest population of endemic catsharks, an example shown here.

Halaelurus natalensis (Photo: Rob Leslie)

Rudy van der Elst